

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently amended): An apparatus, comprising:

an optical transport for receiving an electromagnetic wave having a first property, said transport having a waveguiding region and one or more guiding regions coupled to said waveguiding region; and
a transport influencer, operatively coupled to said optical transport and having at least a portion integrated with one or more guiding regions of said one or more guiding regions, for variably affecting a second property of said transport, wherein said second property influences said first property of said wave.

Claim 2 (Original): The apparatus of claim 1 wherein said first property is a polarization plane and said second property is a magnetic field in said transport.

Claim 3 (Original): The apparatus of claim 1 wherein said influencer produces a controllable magnetic field parallel to a propagation direction of said wave through said transport.

Claim 4 (Original): The apparatus of claim 2 wherein said influencer produces a controllable magnetic field parallel to a propagation direction of said wave through said transport to alter said polarization plane of said wave.

Claim 5 (Original): The apparatus of claim 2 wherein said influencer alters said polarization plane by changing a rotation angle of at least one component of said polarization plane in a range from about zero degrees to about ninety degrees.

Claim 6 (Previously presented): The apparatus of claim 1 wherein said transport is a fiber waveguide including a core and a cladding corresponding to one or more of said one or more guiding regions and wherein said influencer includes a magnetic material integrated with said cladding.

Claim 7 (Original): The apparatus of claim 6 wherein said magnetic material includes permanent magnetic material.

Claim 8 (Original): The apparatus of claim 6 wherein said magnetic material is selectively magnetized responsive to an electric current.

Claim 9 (Original): The apparatus of claim 6 wherein said magnetic material is integrated into said fiber waveguide.

Claim 10 (Previously presented): An apparatus, comprising:
an optical transport for receiving an electromagnetic wave having one of a right hand circular polarization or a left hand circular polarization, said transport having a waveguiding region and one or more guiding regions coupled to said waveguiding region; and
a transport influencer, operatively coupled to said optical transport and having at least a portion integrated with one or more guiding regions of said one or more guiding regions, for controllably affecting a magnetic field of said transport to change a polarization angle of said wave.

Claim 11 (Original): The apparatus of claim 10 wherein said influencer changes a polarization angle over a range of about zero degrees to about ninety degrees.

Claim 12 (Original): The apparatus of claim 10 wherein said influencer produces a controllable magnetic field parallel to a propagation

direction of said wave through said transport to alter said polarization angle.

Claim 13 (Original): The apparatus of claim 11 wherein said influencer is responsive to a control signal for changing said polarization angle.

Claim 14 (Original): The apparatus of claim 12 wherein said influencer is responsive to a control signal for changing said polarization angle.

Claim 15 (Original): The apparatus of claim 11 wherein said influencer alters said polarization angle over a range from about zero degrees to about ninety degrees.

Claim 16 (Original): The apparatus of claim 12 wherein said influencer alters said polarization angle over a range from about zero degrees to about ninety degrees.

Claim 17 (Previously presented): The apparatus of claim 10 wherein said transport is a fiber waveguide including a core and a cladding corresponding to one or more guiding regions of said one or more guiding regions and wherein said influencer includes a magnetic material integrated with said cladding.

Claim 18 (Original): The apparatus of claim 6 wherein said magnetic material includes permanent magnetic material.

Claim 19 (Original): The apparatus of claim 6 wherein said magnetic material is selectively magnetized responsive to an electric current.

Claim 20 (Original): The apparatus of claim 6 wherein said magnetic material is integrated into said fiber waveguide.

Claim 21–Claim 29 (Canceled).

Claim 30 (Previously presented): An apparatus, comprising:

means for receiving an electromagnetic wave having a first property at an optical transport, said transport having a waveguiding region and one or more guiding regions coupled to said waveguiding region; and means, operatively coupled to said receiving means and having at least a portion integrated with one or more guiding regions of said one or more guiding regions, for affecting a second property of said transport using a transport influencer coupled to said optical transport, wherein said second property influences said first property of said wave.

Claim 31 (Original): The apparatus of claim 30 wherein said first property is a polarization plane and said second property is a magnetic field in said transport.

Claim 32 (Original): The apparatus of claim 30 wherein said influencer produces a controllable magnetic field parallel to a propagation direction of said wave through said transport.

Claim 33 (Original): The apparatus of claim 31 wherein said influencer produces a controllable magnetic field parallel to a propagation direction of said wave through said transport to alter said polarization plane of said wave.

Claim 34 (Original): The apparatus of claim 31 wherein said influencer alters said polarization plane by changing a rotation angle of at least one component of said polarization plane in a range from about zero degrees to about ninety degrees.

Claim 35 (Previously presented): The apparatus of claim 30 wherein said transport is a fiber waveguide including a core and a cladding

corresponding to one or more guiding regions of said one or more guiding and wherein said influencer includes a magnetic material integrated with said cladding.

Claim 36 (Original): The apparatus of claim 35 wherein said magnetic material includes permanent magnetic material.

Claim 37 (Original): The apparatus of claim 35 wherein said magnetic material is selectively magnetized responsive to an electric current.

Claim 38 (Original): The apparatus of claim 35 wherein said magnetic material is integrated into said fiber waveguide.

Claim 39 (Previously presented): An apparatus, comprising:
a fiber waveguide for receiving an electromagnetic wave having a particular polarization, said waveguide having a core and one or more guiding regions disposed around said core; and
a variable magnetic field generating structure, a portion of which is integrated with and operatively to one or more of said guiding regions, for producing a controllable variable magnetic field in said core responsive to a control signal, said controllable variable magnetic field variably changing said particular polarization responsive to said control signal.

Claim 40–Claim 57 (Canceled).

Claim 58 (New): An apparatus, comprising:
an optical transport for receiving an electromagnetic wave having a first property, said transport having a waveguiding channel and one or more guiding regions coupled to said waveguiding channel for inhibiting a radiation signal of said wave propagating in said waveguiding channel from exiting said waveguiding channel; and

a transport influencer, operatively coupled to said optical transport and having at least a portion integrated with one or more guiding regions of said one or more guiding regions, for variably affecting a second property of said transport, wherein said second property influences said first property of said wave.

Claim 59 (New): The apparatus of claim 58 wherein said first property is a polarization plane and said second property is a magnetic field in said transport.

Claim 60 (New): The apparatus of claim 58 wherein said influencer produces a variably controllable magnetic field, responsive to a control signal, parallel to a propagation direction of said wave through said transport.

Claim 61 (New): The apparatus of claim 59 wherein said influencer produces a variably controllable magnetic field, responsive to a control signal, parallel to a propagation direction of said wave through said transport to alter said polarization plane of said wave.

Claim 62 (New): The apparatus of claim 59 wherein said influencer alters said polarization plane by changing a rotation angle of at least one component of said polarization plane over a range from about zero degrees to about ninety degrees.

Claim 63 (New): The apparatus of claim 58 wherein said transport includes a fiber waveguide, said waveguiding channel including a core and said one or more guiding regions including one or more cladding layers for said core and wherein said influencer includes a magnetic material integrated with said cladding during manufacture of said transport.

Claim 64 (New): The apparatus of claim 63 wherein said magnetic material includes permanent magnetic material.

Claim 65 (New): The apparatus of claim 63 wherein said magnetic material is selectively magnetized responsive to an electric current.

Claim 66 (New): The apparatus of claim 63 wherein said magnetic material is integrated into said fiber waveguide during fiber manufacturing.

Claim 67 (New): The apparatus of claim 58 wherein said radiation signal is in the visible spectrum.

Claim 68 (New): The apparatus of claim 58 wherein said waveguiding channel includes Verdet constant increasing elements.

Claim 69 (New): The apparatus of claim 58 wherein said transport includes a bulk device.

Claim 70 (New): The apparatus of claim 58 wherein said one or more guiding regions includes a first guiding region provided with a modifying material to modify a transport property of said waveguiding channel without influencing said second property.

Claim 71 (New): The apparatus of claim 59 wherein said one or more guiding regions includes a first guiding region provided with a magnetic material to modify a magnetic property of said waveguiding channel without modifying a component of said magnetic field in said transport that is parallel to a propagation axis through said waveguiding channel.

Claim 72 (New): The apparatus of claim 58 wherein said one or more guiding regions includes a second guiding region provided with a modifying material to modify said second property.

Claim 73 (New): The apparatus of claim 59 wherein said one or more guiding regions includes a second guiding region provided with a second magnetic material to modify a component of said magnetic field in said transport that is parallel to a propagation axis through said waveguiding channel.

Claim 74 (New): The apparatus of claim 58 wherein said one or more guiding regions includes a first guiding region provided with a first modifying material to modify a transport property of said waveguiding channel without influencing said second property and wherein said one or more guiding regions includes a second guiding region provided with a second modifying material to modify said second property.

Claim 75 (New): The apparatus of claim 59 wherein said one or more guiding regions includes a first guiding region provided with a first magnetic material to modify a magnetic property of said waveguiding channel without modifying a component of said magnetic field in said transport that is parallel to a propagation axis through said waveguiding channel and wherein said one or more guiding regions includes a second guiding region provided with a second magnetic material to modify a component of said magnetic field in said transport that is parallel to a propagation axis through said waveguiding channel.

Claim 76 (New): The apparatus of claim 75 wherein said radiation signal includes a component in a spectrum visible to the unaided human eye.